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News Release

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Multi-Site Study to Examine Cognitive Behavior Therapy for Traumatic Brain Injury-Induced Seizures

PROVIDENCE, R.I. – Seizures are a common result of traumatic brain injury, especially in Veterans. A new study funded by the Department of Defense Congressionally Directed Medical Research Programs, and conducted in Providence, R.I. and Birmingham, Ala. – at the Veterans Affairs Medical Centers in Providence and Birmingham, Rhode Island Hospital, Brown University and the University of Alabama at Birmingham – hopes to shed new light on the mechanism behind seizures associated with post-traumatic epilepsy and psychogenic nonepileptic seizures.

The \$3.6 million award, W81XWH-17-1-0619, will examine whether a form of cognitive behavior therapy – a short-term, goal-oriented psychotherapy approach to problem-solving – could be effective in reducing the frequency and/or severity of seizures in those with traumatic brain injury, or TBI. Cognitive behavior therapy has been widely used for improving mental health. It focuses on developing coping strategies to treat specific problems and decrease symptoms.

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Behavior Therapy for TBI-Induced Seizures, 2 of 5

“Individuals can develop pathological responses, including seizures, from major, life-changing events such as traumatic brain injury,” said Jerzy Szaflarski, M.D., Ph.D., director of the Epilepsy Center in the UAB School of Medicine and co-principal investigator of the study. “The overall goal of the study is to see if cognitive behavior therapy will modify brain changes and response to stressful events, and whether these changes will result in improved seizure control.”

“Non-pharmacologic approaches for seizures are gaining acceptance as a therapy,” said W. Curt LaFrance Jr., M.D., co-principal investigator and member of the VA RR&D Center for Neurorestoration and Neurotechnology, associate professor of Psychiatry and Human Behavior and Neurology at Brown University’s Warren Alpert Medical School, director of Neuropsychiatry and Behavioral Neurology at Rhode Island Hospital, and neuropsychiatrist at the Providence VA Medical Center. “Building off of our previous pilot studies, this will be the first large-scale examination of the neuroimaging brain signals in response to an intervention for patients with seizures.”

The study teams will enroll Veteran and civilian patients with a history of TBI, divided into three groups of 88 patients each. One group will consist of patients with TBI without a history of seizures, another group will have TBI with epileptic seizures, and the last will have TBI with nonepileptic seizures.

Patients with seizures will receive cognitive behavior informed therapy for 12 weeks, administered by trained medical professionals. All patients will receive functional magnetic resonance imaging, or MRI, at baseline and again at approximately 14 weeks. An earlier study conducted by LaFrance and Szaflarski in 36 patients showed that cognitive behavior therapy improved seizure control in patients with nonepileptic seizures.

Epileptic seizures can be treated medically and with surgery, but there is not a standard therapy for nonepileptic seizures, which also occur in Veterans. Between 10–20 percent of the general population with seizure disorders experience nonepileptic seizures.

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“The anticipated long term scientific gains will contribute to the goal of validating a neurological biomarker for patients with seizures that may be used for identifying treatment response,” LaFrance said. “The effort could ultimately affect individuals and caregivers by providing a diagnostic tool that may aid in identifying treatment targets and response in reducing seizures and common comorbidities in Veterans and civilians.”

“This project, combining functional neuroimaging with patient interventions, should provide a deeper understanding of neuroanatomic and neurophysiologic processes in patients with seizures,” Szaflarski said. “The information gained will generate further hypotheses on neural processes and biomarkers for both epileptic and nonepileptic seizures.”

The research is being funded through an Idea Development Award by the Department of Defense Congressionally Directed Medical Research Programs’ Epilepsy Research Program. The ERP was initiated in 2015 to develop an understanding of the magnitude of post-traumatic epilepsy within the military and to expand research into the basic mechanisms by which TBI produces epilepsy. More information about the program can be found at <http://cdmrp.army.mil/erp/default>.

About Ocean State Research Institute

Ocean State Research Institute is a Non-Profit Corporation established in 1988 and affiliated with the Providence VA Medical Center in Providence, R.I. whose Mission is, “To promote and conduct research and education activities to improve the health and lives of Veterans.” Each VA NPC is an independent, state chartered organization. As a 501(c)(3) organization incorporated in the State of Rhode Island, all research studies and educational programs supported by OSRI benefit VA Personnel, or patients and their families. An affiliate of both Brown University and the University of Rhode Island, OSRI proudly serves our Veterans through research and education.

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About University of Alabama at Birmingham

Known for its innovative and interdisciplinary approach to education at both the graduate and undergraduate levels, the University of Alabama at Birmingham is an internationally renowned research university and academic medical center, as well as Alabama's largest employer, with some 23,000 employees, and has an annual economic impact exceeding \$5 billion on the state. The five pillars of UAB's mission include education, research, patient care, community service and economic development. UAB is a two-time recipient of the prestigious Center for Translational Science Award. Learn more at www.uab.edu. UAB: Knowledge that will change your world.

About Rhode Island Hospital

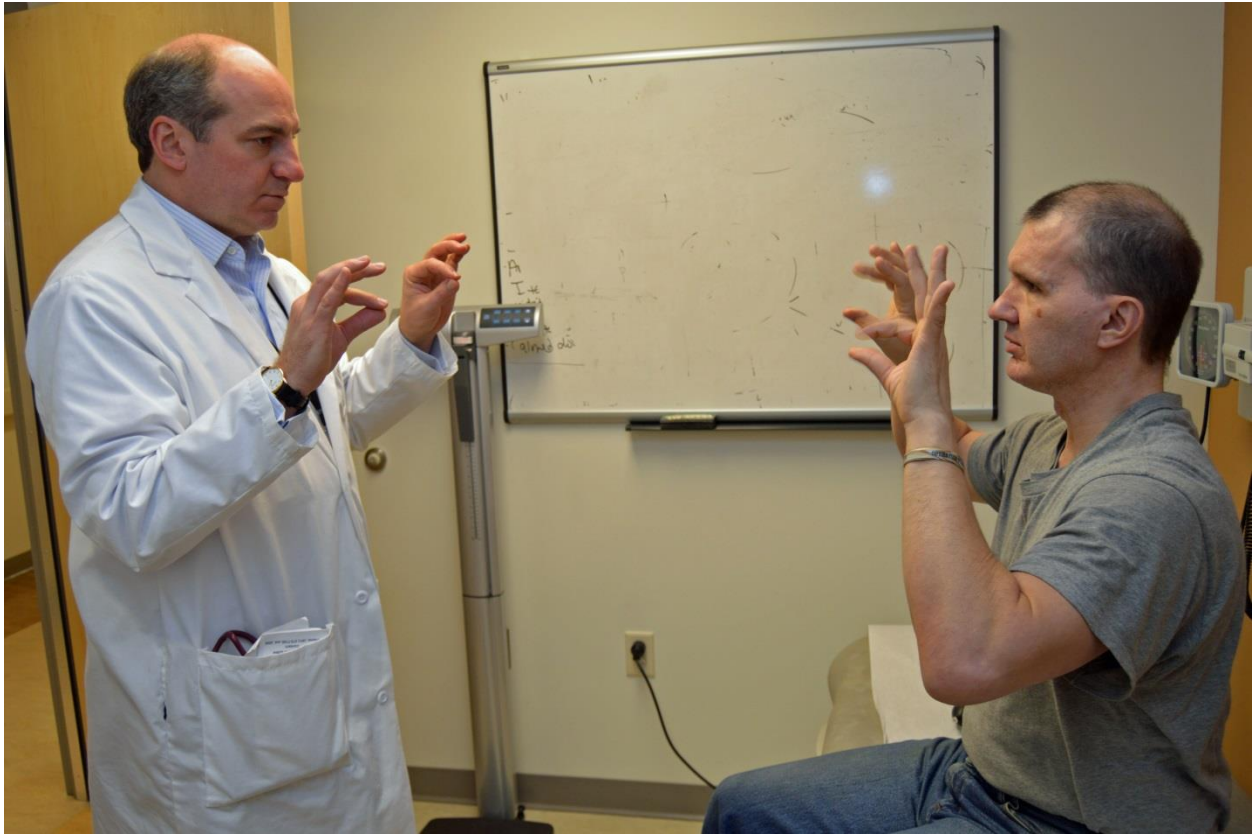
Founded in 1863, Rhode Island Hospital in Providence, RI, is a private, not-for-profit hospital and is the principal teaching hospital of The Warren Alpert Medical School of Brown University. A major trauma center for southeastern New England, the hospital is dedicated to being on the cutting edge of medicine and research. It is home to Hasbro Children's Hospital, the state's only facility dedicated to pediatric care. Last year, Rhode Island Hospital received more than \$50 million in external research funding. For more information on Rhode Island Hospital, visit www.rhodeislandhospital.org, follow us on Twitter @RIHospital or like us on Facebook.

About Brown University

Located in historic Providence, RI, and founded in 1764, Brown University is an independent, coeducational Ivy League institution and the seventh-oldest college in the United States. Brown is a leading research university where talented students and accomplished faculty collaborate to blend deep content knowledge across many disciplines to address the defining challenges of a complex and changing world. At the heart of the University's teaching, research and scholarship is a commitment to academic excellence, intellectual freedom and making an impact to better serve people, communities and society. Brown is home to undergraduate and graduate programs plus the Warren Alpert Medical School, School of Public Health, School of Engineering and School of Professional Studies.

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Behavior Therapy for TBI-Induced Seizures, 5 of 5



Dr. W. Curt LaFrance Jr., co-principal investigator for a new study that hopes to shed light on the mechanism behind seizures associated with post-traumatic epilepsy and psychogenic nonepileptic seizures, conducts a finger-tapping exercise with Army and Navy Veteran Ernest J. Avery of West Warwick, R.I., as part of an exam at the Providence VA Medical Center Feb. 2, 2016. Seizures are a common result of traumatic brain injury, especially in Veterans. The study is funded by the Department of Defense Congressionally Directed Medical Research Programs, and conducted in Providence, R.I. and Birmingham, Ala. – at the Veterans Affairs Medical Centers in Providence and Birmingham, Rhode Island Hospital, Brown University and the University of Alabama at Birmingham. (Providence VA Medical Center photo by Winfield Danielson)

References:

LaFrance WC, Jr., Baird GL, Barry JJ, Blum AS, Frank Webb A, Keitner GI, et al. Multicenter pilot treatment trial for psychogenic nonepileptic seizures: a randomized clinical trial. JAMA Psychiatry 2014;71(9):997-1005.

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